

# **San Joaquin River Management Program Advisory Council Meeting**

Thursday, March 10, 2005

Stanislaus County Agricultural Center  
Main Conference Room in Stanislaus Building  
3800 Cornucopia Way  
Modesto, California

## **DRAFT AGENDA**

- 9:00 a.m. Welcome and Introductions – Tim Ramirez, Chair
- 9:15 a.m. Draft San Joaquin River Water Quality Management Group Plan – Byron Buck, MWD
- 10:00 a.m. Water Quality Monitoring in Wetlands – Toby O'Geen PhD, UC Davis
- 10:45 a.m. New Approaches to Controlling Wetland Discharges in the SJR - Nigel Quinn PhD, UC Berkeley
- 11:30 a.m. Other Business
- 12:00 p.m. Adjourn

# **SAN JOAQUIN RIVER MANAGEMENT PROGRAM ADVISORY COUNCIL**

## **DRAFT MEETING HIGHLIGHTS**

Thursday, March 10, 2005  
Stanislaus County Agricultural Center  
Modesto, California

### **Welcome and Introductions**

The San Joaquin River Management Program Advisory Council met at the Stanislaus County Agricultural Center in Modesto, California. Tim Ramirez opened the meeting with announcements and introductions. There was an announcement on a Tuolumne River event called "Mend the Bend"; a restoration effort in need of volunteers for planting trees April 2<sup>nd</sup>.

### **San Joaquin River Water Quality Management Group**

Byron Buck, MWD, discussed the current plans for achieving water quality objectives in the San Joaquin River. The objective of the Management Group is to prepare and implement a plan to meet the water quality objectives for salt and boron at Vernalis and Dissolved Oxygen (DO) at the Stockton Deep Water Ship Channel (SDWSC) in coordination with CALFED Stage I objectives. The recommendation is that phased short term (0-5 years) and long term (5+ years) solutions be implemented. Some short term elements include: Delta-Mendota Canal recirculation during dry months (July-September), move compliance location for DO in the Stanislaus River upstream to location of Steelhead habitat, and evaluation of Refuge actions to help in critical winter/spring periods. Long term elements include: full implementation of certain westside drainage improvements to eliminate violations at Vernalis. Other topics that are discussed that have the potential to improve SJR water quality is the research and projects in Westlands Water District for on-farm drainage management. The DO problem could be addressed with the addition of the head of Old River barrier use in April-May and July-November to augment lower SJR flows, additional recirculation, implementation of City of Stockton ammonia removal project, implementation of aeration project in Stockton DWSC, and additional real time water quality monitoring.

Beneficiaries include the general public and the environment, but more closely will improve the SJR fisheries habitat, the lower SJR water users, Port of Stockton, Delta water exporters, upstream users, New Melones users, and the USBR. The next step is to discuss these plans with a negotiating forum/participants for development of an implementation MOU and to look for implementation funding for some of the suggested actions. This could include upgrades to the Newman Wasteway for better recirculation and purchase of

2000+ acres of land west of Interstate 5 for retirement to reduce salt/sediment loads in the lower SJR.

There was a question regarding the preferred use of the Newman Wasteway versus the Westley Wasteway. Buck explained that there is some concern about the Westley Wasteway's hydraulic constraints, so it was recommended by SJRMP members that a justification for choosing the Newman Wasteway be included in the current plans and funding requests. It was also suggested to change the name of the Newman Wasteway because the "Wasteway" doesn't really communicate with the fact that the water is for recirculation and is used to improve the water quality in the SJR. The name may confuse the public into thinking it is polluted wastewater. Other concerns include the need to improve the real-time water quality modeling of the SJR and method for reporting the information to the public.

Future plans include completion of the MOU, and once finalized, the plan would be submitted for environmental review.

### **Water Quality Monitoring in Wetlands**

Toby O'Geen, UC Davis, shared the preliminary results of water quality monitoring in constructed wetlands. Constructed wetlands (CWs) are designed to filter runoff water and have the potential to improve water quality in tailwater returns. CWs may decrease the turbidity, capture nitrogen and phosphorus, and help pesticide decomposition. Drawbacks include potential mosquito habitat, salt accumulation, and DO and selenium issues. CWs are a viable solution for improving water quality for ag return flows but have not been tested thoroughly in the San Joaquin Valley. Some studies have been performed in the Midwest, however conditions there (such as soil types and precipitation in summer) are different than here.

O'Geen monitored two constructed wetlands with different: ages, sizes, shapes, and flow patterns. Both wetlands were located on the Westside of the San Joaquin Valley and in the floodplain of the San Joaquin River. The first wetland is newly constructed (less than a year old), 3.2 acres in area, of dendrite design, and receives tailwater from approximately 800 acres of surrounding farmland. The second wetland is 12 years old, 18 acres, pond like, and receives tailwater from approximately 4,000 acres of surrounding farmland.

The objective of the monitoring is contaminate removal in two CWs and identifying potential adverse impacts of CWs on water quality to the San Joaquin River. The approach was to develop a mass balance for both systems through monitoring of input and output water. Weekly grab samples were collected during the 2004 irrigation season at the inlets and outlets, area velocity meters were installed at the inlets to measure total discharge into the wetlands, and V-

Notch weir boards and pressure transducers installed at outlets to measure total discharge from the wetlands.

The flow was compared to the water quality samples to determine loadings entering and exiting the wetlands. Detailed water quality graphs were described for each constituent to determine some preliminary conclusions: CWs improve the quality of agricultural tailwater; the 12 year old wetland was more efficient at removing nitrogen, phosphorus and sediment; wetland age, size and plant canopy influence contaminate removal efficiency; water quality contaminants such as dissolved organic carbon, salts, selenium and algae were not radically amplified in the CWs; and flow rates are needed to quantify the input and output contaminate loads.

Future plans include studying additional CWs of similar shape, size, and age to record the data as they evolve and/or study contrasting designs of similar size and age. Plans for this year include monitoring an adjacent CW of same size and age as the young wetland discussed above.

### **Advancing the Concept of Real-Time Water Quality Management in the San Joaquin Basin.**

Nigel Quinn, UC Berkeley, discussed advancing the concept of real-time water quality management in the San Joaquin Basin. Quinn explained how the use of real time water quality measurements could be used to better manage discharges into the San Joaquin River and take advantage of the assimilative capacity of the river. Currently, most of the flow in the SJR comes from the eastside while most of the salt load is from the westside; principally the Mud and Salt Sloughs. The current real-time monitoring network measures flow, EC, temperature, and pH. Quinn suggested that the current real-time monitoring network be improved to monitor more locations and enhance existing stations. Since the SJR real-time modeling program's conception the loads in the River have been reduced.

Local irrigation and water districts could aid in the installation of new monitoring stations. The information collected could assist with the management of tailwater drainage on the Westside. Quinn has worked with the Grasslands Bypass Project to create a real-time water quality monitoring network for use by Water District to collect selenium data to meet load limits in the SJR. Quinn stressed that one needs to monitor what comes in and goes out of wetlands to develop credible loadings. The use of a good modeling program would be invaluable in assisting to coordinate discharges with assimilative capacity in the SJR.

The need to monitor wetlands was stressed because when wetlands are drained, a significant amount of vegetation is exposed. This carbonaceous matter could contribute to high loads in outflow when the wetland is refilled. Mapping the

vegetation in these areas is important to understanding the water quality. Quinn has developed a method to map the wetlands by using satellite imagery.

In conclusion, there is a need to improve the current real-time modeling network and funding is needed to complete this task including local and regional support and in-kind services. This is needed in order to continue to provide useful information for management of drainage water into the San Joaquin River in order to meet the current and future water quality standards.

### **Other Business**

Ramirez discussed funding opportunities for real-time monitoring; the need for agency support and the inclusion of local stakeholders in the process. A plan is really needed to determine what is required and how it will be accomplished. A new model is being researched and agency staff and the educational community can be utilized. It was suggested that Ernie Taylor revitalize the SJRMP water quality sub-committee. Some subjects that need to be discussed include a proposal on how the real-time modeling will be done, a list of who should run the model, if there is a need for new constituents to be modeled, like DO, and how the program could help with management. It was decided that Paula Landis and Taylor would discuss these topics and decide what can be done. Quinn mentioned that with RWQCB funding they could get a demonstration project implemented to get baseline information and start monitoring for the short term.

**The Next Advisory Council Meeting:** is scheduled on Thursday September 29, 2005 at 9:00 am at the Stanislaus County Agricultural Center.

**ATTENDEES AT  
SAN JOAQUIN RIVER MANAGEMENT PROGRAM  
ADVISORY COUNCIL MEETING  
March 10, 2005**

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